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# SIGMA XI QUARTERLY

Vol. XII

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No. 1



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Secretary.....	EDWARD ELLERY Union College, Schenectady, N. Y.
Treasurer.....	GEORGE B. PEGRAM Columbia University, New York City

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### EXECUTIVE COMMITTEE

CARL H. EIGENMANN.....	Indiana University, Bloomington, Ind. <i>Term expires January, 1925</i>
GEORGE W. STEWART.....	University of Iowa, Iowa City, Iowa <i>Term expires January, 1926</i>
CLARENCE E. McCLUNG.....	University of Pennsylvania, Philadelphia, Pa. <i>Term expires January, 1927</i>
VERNON KELLOGG.....	National Research Council, Washington, D. C. <i>Term expires January, 1928</i>
HENRY B. WARD.....	University of Illinois, Ill. <i>Term expires January, 1929</i>
C. E. DAVIES.....	New York, Alumni Representative <i>Term expires January, 1925</i>

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# SIGMA XI QUARTERLY

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## EDITORIAL COMMITTEE

FLOYD KAREER RICHTMYER  
EDWIN EMERY SLOSSON

HENRY BALDWIN WARD  
EDWARD ELLERY

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## EDITORIALS

### THE FEBRUARY INSTALLATIONS

Of interest to every member of Sigma Xi and of importance as examples of the expanding movements in its recent history are the installations of new chapters at The University of Virginia and The Johns Hopkins University. The accounts of these events, submitted by the respective secretaries, tell the stories as far as the printed word can. What is difficult to put into print is the spirit of enthusiasm and satisfaction with which the program in each instance was carried out. We are glad to take this opportunity to welcome to the organization these new chapters and to include them and their officers in the official list printed in the Quarterly.

### THE OFFICIAL MINUTES

The attention of all concerned is called to the Minutes of the December meeting of the Executive Committee and of the Cincinnati Convention. Corrections and additions, as they may be noted, should be sent to the secretary.

The program of the Convention was carried out as published. The second annual joint meeting of the American Association for the Advancement of Science and our Society was a successful and brilliant event. The large auditorium of the Hughes High School was crowded with an audience eager to hear Dr. Whitney and witness his demonstrations. Wide publicity in the press was given to Dr. Whitney's address. Sigma Xi and the cause of research generally are grateful for the important contribution and coöperation.

## MINUTES OF THE EXECUTIVE COMMITTEE MEETING

CINCINNATI, DECEMBER 27, 1923

A meeting of the Executive Committee was held in Cincinnati, December 27, 1923. Present were:—President Ward, Professors Richtmyer, Eigenmann, Stewart, McClung and Ellery, and Mr. C. E. Davies (Rensselaer 1914) and Dr. Frederick B. Utley (Yale 1903) representing the alumni.

President Ward welcomed the members of the Alumni Committee and remarked upon the new spirit and expansion of the work of Sigma Xi which their presence suggested.

President Ward offered a final report on applications for charters from groups at various institutions, and action was taken as follows:

It was voted to recommend to the convention favorable action on the application from a group at the California Institute of Technology, and that the charter so granted carry the customary limiting provision regarding the election of undergraduates to associate membership.

It was voted to recommend to the convention favorable action on the application from a group at the University of Virginia, and that the charter so granted carry the customary limiting provision regarding the election of undergraduates to associate membership.

It was voted to recommend to the convention favorable action on the application from a group at Johns Hopkins University, and that the charter so granted carry the customary limiting provision regarding the election of undergraduates to associate membership.

It was voted that Professors Richtmyer and Ellery and Mr. Davies be made a committee to prepare and present to the Executive Committee at its spring meeting a comprehensive plan for realizing a full participation of the alumni members and associates of the society in its work of promoting research.

It was voted that an amendment to the Constitution governing the expulsion of members for cause be made a special order of business for the spring meeting.

Professors Pegram and Ellery, the Budget Committee, recommended the following as a tentative budget for 1924:

# MINUTES OF THE EXECUTIVE COMMITTEE

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Quarterly.....	\$ 750
Secretary's office expenses (including clerical hire)....	1200
President's office expenses.....	100
Traveling expenses of Ex. Com. (spring meeting).....	450
Engrossing charters.....	120
Traveling expenses of officers.....	400
	<hr/>
	\$3020

Estimated income for 1924—\$3200.

The secretary was requested to report at the spring meeting the record of the past action of the Executive Committee on the question of granting limited charters.

It was voted to refer to the secretary with power the date and place of the spring meeting of the committee.

In view of certain curtailments made necessary at the University of North Dakota by a reduction in the legislative grant of funds to the university, the secretary was authorized to express to the North Dakota Chapter the satisfaction of the committee that the chapter was continuing its activities in maintaining and advancing the purposes of the society in spite of the difficulties which the financial situation was causing.

It was voted that the Alumni Committee be allocated as follows:

Term expiring 1925	Dr. Paul B. Magnuson
Term expiring 1926	Mr. T. W. Barrally
Term expiring 1927	Dr. David Starr Jordan
Term expiring 1928	Dr. Frederick B. Utley
Term expiring 1929	Mr. C. E. Davies

It was voted that President Ward express to Mr. Wickenden the interest of the society in the investigation of engineering education soon to be undertaken, particularly in any aspects referring to the development of research or of research men, and that President Ward offer the services of our organization if appropriate opportunity for such service arise.

It was voted that an editorial board of four members be appointed by the Executive Committee, the secretary to be an ex-officio member, each man to serve four years; the first men appointed to be allocated and thereafter one man to be appointed each year.

It was voted that the convention committee (Professors Richtmyer and Ellery) be continued.

EDWARD ELLERY, *Secretary.*

# PROCEEDINGS OF THE TWENTY-FOURTH CON- VENTION OF THE SIGMA XI

CINCINNATI, OHIO, DECEMBER 28, 1923

The Twenty-fourth Convention of the Society of Sigma Xi was held at the University of Cincinnati, Cincinnati, Ohio, on Friday, December 28, 1923.

The business session convened at half past two in the afternoon in Room 203 of the Chemical Laboratory with President Ward in the chair. Professors B. T. Baldwin, L. W. Jones, and W. F. Schulz were appointed a committee on credentials. The committee received the credentials of the delegates and, after inspecting the papers, presented their report of delegates present as follows:

Cornell.....	R. A. Emerson
Rensselaer.....	N. A. Patterson
Union.....	Edward Ellery
Kansas.....	P. B. Lawson
	P. A. Readio
Minnesota.....	D. E. Minnick
Ohio.....	F. C. Blake
Pennsylvania.....	C. E. McClung
	M. J. Babb
Iowa.....	B. T. Baldwin
Columbia.....	George B. Pegram
	Lucy J. Hayner
Michigan.....	J. H. Ehlers
Illinois.....	H. J. Van Cleave
	Elmer Roberts
	W. F. Schulz
Case.....	D. C. Miller
Indiana.....	F. Payne
Missouri.....	W. A. Tarr
Syracuse.....	R. A. Porter
Purdue.....	A. P. Poorman
Texas.....	T. S. Painter
Mayo Foundation.....	T. B. Magath
North Dakota.....	Howard E. Simpson
Ames.....	J. N. Martin
	E. I. Melhus
Rutgers.....	T. C. Nelson
Swarthmore.....	W. R. Wright

There were thus twenty-two out of forty chapters represented.

It was voted that the minutes of the Twenty-third Annual Convention be approved as published in the March, 1923, number of the Quarterly.

President Ward presented the following report:

a. The procedure by which petitioning groups at various institutions submitted their application for a charter was described in detail, showing how the Executive Committee gathered its information before taking any action upon the application. A visit to the institution with which the petitioning group is connected is always made by one of the national officers and, if the survey results in a favorable report, the petitioning group is advised to proceed with the preparation and printing of a formal petition. If the action by the Executive Committee on this printed petition is favorable, the petition then goes to the convention for final action.

b. In accordance with the procedure outlined, President Ward announced that the Executive Committee recommended to the favorable consideration of the convention petitions as follows:

1. From a group at the University of Virginia
2. From a group at the California Institute of Technology
3. From a group at Johns Hopkins University

In accordance with the report of the president, the convention took the following action:

a. Upon roll-call of the chapters represented, it was voted unanimously to grant a charter to the group of petitioners from the University of Virginia, with the limitation that undergraduates should be elected to associate membership only.

b. Upon roll-call of the chapters represented, it was voted unanimously to grant a charter to the group of petitioners from the California Institute of Technology, with the limitation that undergraduates should be elected to associate membership only.

c. Upon roll-call of the chapters represented, it was voted unanimously to grant a charter to the group of petitioners from Johns Hopkins University, with the limitation that undergraduates should be elected to associate membership only.

President Ward called the attention of the delegates to the fact that for the first time in the history of the society the alumni were represented in the convention by a delegate with the privilege of voting. This delegate was Mr. C. E. Davies, Secretary of the American Society of Mechanical Engineers, New York City.

Dean Pegram presented the report of the treasurer which is printed on page 18.

President Ward appointed Professors J. F. Kemp and C. P. Berkey as the auditing committee with customary powers.



Professor Emerson of Cornell brought up the circular letter, transmitted by the Cornell chapter during the spring to all the chapters, with reference to the publication by the society of an official journal. He stated that the Cornell Chapter, through its officers, had presented the question to the spring meeting of the executive committee and asked whether the executive committee had taken any action and, if so, if it was prepared to report at this time. President Ward reported that the executive committee had given the matter careful and thorough consideration; had ascertained the relative cost of publishing a quarterly and of publishing a year-book; had considered ways and means of keeping the various chapters in touch with each other and with the national organization; and had reached the conclusion that the official journal of the society now published quarterly should be continued.

There was further discussion of the question presented by the Cornell Chapter by Professor Baldwin (Iowa), Professor Wright (Cornell), Mr. Davies (New York), Professor Blake (Ohio), and Professor Miller (Case).

It was unanimously voted that the secretary be instructed to furnish the libraries of institutions in which there are chapters, and such other libraries as the president and secretary may decide upon, with complete sets of the Quarterly so far as they are available.

Upon motion of Professor Patterson (Rensselaer), the convention voted that the secretary be authorized to solicit from chapters suggestions as to ways of making the Quarterly more effective and of greater interest. The motion was unanimously adopted.

Upon motion of Professor McClung, it was voted unanimously that because of the expanded activities of the society it is the sense of the convention that the continuation of the Quarterly is desirable and necessary.

Upon motion of Professor Pegram, it was voted unanimously to make the usual assessment of seventy-five cents for each chapter member.

Secretary Ellery presented the report of the nominating committee signed by Julius Stieglitz (Chicago), Chairman, David Starr Jordan (Stanford), and Mathew A. Hunter (Rensselaer), as follows:

The Committee on Nominations begs to report as follows to the Sigma Xi Society:

For President: Dr. F. K. Richtmyer, Cornell University

For Secretary: Dr. Edward Ellery, Union College



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For Treasurer: Dr. George B. Pegram, Columbia University.

For member of the Executive Committee to replace Dr. Lauder W. Jones, whose term expires: Professor Henry B. Ward, the present president of the society, University of Illinois.

For replacing Dr. Richtmyer on the Executive Committee: Dr. Vernon Kellogg, National Research Council.

(Signed) DAVID STARR JORDAN

MATTHEW A. HUNTER

JULIUS STIEGLITZ, *Chairman.*

Nominations from the floor were called for.

The report of the nominating committee was unanimously adopted.

Secretary Ellery moved that the alumni committee and terms of office be as follows:

Term expiring in 1925	Dr. Paul B. Magnuson
Term expiring in 1926	Mr. T. W. Barrally
Term expiring in 1927	Dr. David Starr Jordan
Term expiring in 1928	Dr. Frederick B. Utley
Term expiring in 1929	Mr. C. E. Davies

The motion was unanimously carried.

Professor Richtmyer of Cornell offered the following resolution:

*Resolved*, That this Society express to Dr. Whitney its keen appreciation of the signal service which he has rendered the cause of research by preparing and presenting at the Cincinnati Convention the lecture on "The Vacuum, There's Something in It."

The resolution was unanimously adopted.

Upon motion of Secretary Ellery the convention voted to express its sincere appreciation of the services of Professor R. S. Tour of the University of Cincinnati, who acted as chairman of the local committee in making arrangements for the convention, the annual dinner, and the annual public lecture given jointly with the American Association for the Advancement of Science.

The convention then adjourned to meet in the University Commons for the annual dinner and any further business.

#### THE ANNUAL DINNER

The delegates and guests to the number of 117 re-convened at half past six in the University Commons. Arrangements for the dinner had been made through the chairman of the local committee,

Professor R. S. Tour of the University of Cincinnati, and were admirably carried out. Members and guests were present as follows:

<i>Name</i>	<i>Chapter</i>
Adams, E. L.	California
Adams, L. A.	Guest
Addington, Arch R.	Indiana
Auten, Mary	Ohio
Babb, M. J.	Pennsylvania
Baker, H. J.	Michigan
Baldwin, B. T.	Pennsylvania
Ball, E. D.	Ohio
Bangham, Ralph V.	Ohio
Batson, O. V.	Wisconsin
Bayles, Frederick P.	Guest
Bayles, Edith Hill	Guest
Bean, R. B.	Guest
Berger, E. W.	Ohio
Blake, F. C.	Ohio
Cahn, A. R.	Illinois
Chickering, A. M.	Michigan
Colton, Harold S.	Pennsylvania
Crook, A. R.	Guest
Davies, C. E.	Rensselaer
Dawson, Ralph W.	Minnesota
Decker, Fred J.	Guest
Detmers, Freda	Ohio
Downing, Elliott R.	Chicago
Ehlers, J. H.	Michigan
Eigenmann, C. H.	Indiana
Eigenmann, Rosa Smith	Indiana
Eigenmann, Thora	Guest
Ellery, Edward	Union
Engle, Bessie C.	Chicago
Finkel, B. F.	Pennsylvania
Forbes, William T. M.	Cornell
Frank, O. D.	Guest
Fulmer, Hugh L.	Michigan
Funkhouser, W. D.	Cornell
Gilmer, Paul M.	Minnesota
Glasgow, Hugh	Illinois
Gordon, C. H.	Nebraska
Granovox, A. A.	Wisconsin
Haigis, C. D.	Guest
Hance, Robert T.	Pennsylvania
Harding, C. F.	Guest
Hartley, E. A.	Syracuse

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<i>Name</i>	<i>Chapter</i>
Hewlett, C. M.	Iowa
Hicks, Frederick C.	Guest
Hoffman, William E.	Guest
Hor, Kren S.	California
Hubbard, George D.	Cornell
Hunt, J. H.	Guest
Ireland, Joseph C.	Chicago
Johnston, W. D.	Chicago
Jones, Lauder W.	Chicago
Kiellenery, C. J.	Guest
Landacre, E. L.	Ohio
Leverett, Frank	Michigan
Lindsay, George A.	Michigan
Lodholz, E.	Pennsylvania
Magath, T. B.	Mayo Founda- tion
Malott, C. A.	Indiana
Martin, J. N.	Ames
McBride, O. C.	Missouri
McClung, C. E.	Pennsylvania
McClung, Mrs. C. E.	Guest
McCormack, Robert N.	Ohio
Mickel, Clarence E.	Minnesota
Monroe, C. J.	Chicago
Naborns, Robert K.	Chicago
Nutter, August E.	Ohio
Nyswander, R. E.	Cornell
Page, A. B.	Guest
Patterson, P. A.	Kansas
Payne, F.	Indiana
Pechstein, L. A.	Chicago
Pegram, George B.	Columbia
Pinney, Mary Edith	Kansas
Porter, R. A.	Syracuse
Ransom, B. H.	District of Columbia
Reed, E. L.	Chicago
Reynolds, E. S.	Illinois
Richtmyer, F. K.	Cornell
Roberts, Elmer	Illinois
Rosbacker, H.	Chicago
Ryan, Roger W.	Chicago
Safford, F. H.	Pennsylvania
Schoewe, Walter H. V.	Kansas
Schrader, J. E.	Ohio
Schulte, H. von W.	Columbia

<i>Name</i>	<i>Chapter</i>
Schulz, William F.	Illinois
Scott, John W.	Chicago
Shadle, Albert R.	Cornell
Sherzer, W. H.	Michigan
Shumway, Waldo	Illinois
Simpson, Howard E.	North Dakota
Skinner, Charles H.	Washington
Slosson, Edwin E.	Kansas
Smith, C. M.	Purdue
Smith, Ernest Rice	Cornell
Snell, J. F.	McGill
Spruce, R. G.	Illinois
Steagall, Mary M.	Chicago
Stewart, G. W.	Iowa
Switzer, J. E.	Indiana
Tarr, W. A.	Missouri
Tarr, Mrs. W. A.	Guest
Terry, R. J.	Washington
Townsend, R. V.	Guest
Trost, John F.	Purdue
Tucker, W. M.	Indiana
Ward, Henry B.	Illinois
Wenrich, D. H.	Pennsylvania
Whedon, A. D.	Pennsylvania
Whipple, G. M.	Cornell
Whitney, W. R.	Guest
Withers, W. A.	Cornell
Wood, Jessie	Stanford
Wright, W. R.	Swarthmore

At the close of the dinner President Ward called upon the following speakers: Professor R. Bennett Bean of the University of Virginia, Mr. C. E. Davies, Alumni Representative, President Hicks of the University of Cincinnati, Professor C. H. Gordon, Secretary of Phi Kappa Phi, President-elect Richtmyer, and Dr. Willis Rodney Whitney.

Adjournment was then taken to the Hughes High School for the Second Annual Sigma Xi Lecture.

#### THE ANNUAL LECTURE

The Second Annual Sigma Xi Lecture given under the joint auspices of the American Association for the Advancement of Science and the Society of the Sigma Xi was delivered by Dr. Willis Rodney Whitney, Director of the Research Laboratory of the General Electric

Company. Dr. Whitney spoke on—"The Vacuum, There's Something in It."

Dr. Whitney began with some striking remarks about recent scientific progress, emphasizing how very recent indeed is all that we call science. In the Middle Ages western civilization was almost wholly engaged in acquiring salvation or "safety first," rather than knowledge and understanding; to-day scientists are seeking truth, and they think of "safety first" last. If the life period of mankind is represented by the life period of an individual fifty years old, it emerges that the fifty-year-old man thus thought of did not learn to scratch the simplest records on stone until his forty-ninth year. For him printing has existed only three months. The automobile was actually first devised on this particular fiftieth birthday. The speaker pointed out that there is now available for human work power equivalent to a hundred man-power for every man in the United States. But guidance of power application is mental work; there are no automatic mentalities. Man is the only animal that can do this. Turning to his special topic, Dr. Whitney mentioned many examples, showing how our common life depends on vacua, from those of vacuum lamps to those of thermos bottles. Less familiar to people in general are the uses of vacua in the detailed study of chemical elements and in that of atomic structure. The photoelectric cell was demonstrated and discussed, and an electric apparatus strikingly simulating some of the characters of the animal eye and nervous system was shown. Numerous experiments were performed during the lecture, some of them very spectacular and all of them clearly explained. An enthusiastic audience filled the large auditorium of the Hughes High School, in which special electric apparatus had been installed for Dr. Whitney's experiments.

#### INSTALLATION OF THE UNIVERSITY OF VIRGINIA CHAPTER

1. Installation proper, February 28, 1924, afternoon meeting.

The meeting was called to order by President F. K. Richtmyer of the National Society of Sigma Xi, in the Colonnade Club on the University campus. The following persons were present:

President F. K. Richtmyer, Secretary Edward Ellery, R. B. Bean, R. M. Bird, F. L. Brown, W. H. Echols, Wilson Gee, A. W. Giles, H. E. Jordan, W. A. Kepner, J. E. Kindred, I. F. Lewis, S. A. Mitchell and T. L. Watson.

The usual program for the installation of a new chapter was followed.

a. The petition for the granting of a Chapter was read by the Secretary.

b. The President stated that the petition had been favorably received by the Executive Committee and reported to the Convention with their recommendation, Dec. 28, 1923. The Convention voted unanimously to grant the Charter, twenty-two of the Chapters being represented at the Convention.

c. The new members, Professors William Holding Echols, Harvey Ernest Jordan and William Allison Kepner were presented by the Marshall, and were initiated by President Richtmyer.

d. The charter of the new Chapter was presented to the Temporary Chairman Professor I. F. Lewis, with the felicitations of the National Officers. Prof. Lewis received the Charter and expressed appreciation of the action of the Society of Sigma Xi in granting the petition.

e. President Richtmyer gave his charge to the Chapter calling particular attention to the ideals of the Society and pointing out that the chief honor lay, not in belonging to an Honor Society, but rather in the opportunity which such membership afforded for cooperating in research work and aiding in the advancement of knowledge. He stated that he looked forward with a great deal of enthusiasm to the work that would be done along the lines of research at the University, with which had been connected and which had helped to train so many leaders in the Political life of the Nation; men who had done much to further the ideals of liberty and democracy in the United States.

f. The charge was followed by a symposium at which were discussed the purposes and policies of the Society of Sigma Xi. The President and Secretary in answer to questions pointed out that Sigma Xi had grown away from the idea of being simply an Honor Society and had developed into a Society actively engaged in the encouragement of research. The President related some interesting incidents connected with the founding of the Society and its later development. At first the Society was wont to elect to membership those who stood high in scholarship in the Sciences pure and applied, paying little attention to accomplished research. Later local Chapters decided to elect undergraduates to associate membership only, electing to full membership only those who had completed research. This policy became so general that it was adopted by the National Society in the granting of new charters. This policy encourages the associates to continue and complete some piece of research thereby gaining the privilege of election to full membership.

A still more recent development along this line is the establishment of a research fellowship.

They pointed out that in case this Chapter desired to have no associates it was their privilege to so decide. On the other hand should they decide to elect undergraduates, it should be as associates on the basis of grades and promise of research. "Sigma Xi," pointed out the President, "stands for Independence of Thought, Initiative, and Ability."

They further pointed out that if after several years local conditions showed that the election of undergraduates to full membership on the basis of accomplished research would be advantageous, then a petition to have the associate



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membership clause of the Charter removed would be in order, and would probably be received favorably by the Executive Committee.

Questions were then asked regarding the time and methods of electing new members, the initiation of members, public meetings, etc. These were all answered very fully by the President and Secretary. They cited examples in their own and other Chapters of different methods employed.

g. President Richtmyer called for nominations for officers of the local Chapter of the Society of Sigma Xi. Professor H. E. Jordan, chairman of the committee on nominations read the report of the committee. A motion was made by Prof. Echols to accept the report, this was seconded and the Secretary was instructed to cast a ballot for the officers nominated. They were as follows:

President, Robert Bennett Bean  
Vice-President, Samuel Alfred Mitchell  
Secretary-Treasurer, Frederick Lyons Brown  
Executive Committee, Graham Edgar, and Albert William Giles.

The new officers were welcomed by the National Officers and the meeting turned over to President Bean.

On the recommendation of Secretary Ellery a motion was made seconded and passed that in order to make for continuity the two members at large of the Executive Committee should hold office for two years, retiring alternately. To make this possible the present members are instructed to draw lots, one to serve for two years, the other for one year.

The Constitution and By-laws of the New Chapter as drawn up by the Committee on Constitution and By-laws were then read, amended and finally approved in the present form.

The Meeting adjourned until dinner hour.

### 2. The installation dinner.

The installation dinner was held at the Dollie Madison Inn, the National Officers, Dean Wm. M. Thorton of the Department of Engineering and Dean J. C. Metcalf of the Department of Graduate Studies were guests of the Chapter. After a pleasant meal, President Bean introduced Dean Thorton, who congratulated the Chapter upon its organization and pointed out the need for fuller knowledge of the truth. "We must know the Truth," he said, "if we are to be safe," and research is the way to learn that truth.

Dean Metcalf then spoke pointing out that teaching may be done by ritual or by adventure. Research is an adventure, it is bringing from beyond the horizon some thought or fact and making it part of our common knowledge or daily life. He also pointed out that the reports this year from the various Schools in the University, indicated that a great deal more research is now underway than ever before. He suggested that no graduate student should attend this University and merely receive instruction, he should himself con-



tribute thru his own work to the sum of human knowledge and achievement,—he should do some research work in some line of endeavor.

He pointed out as another hopeful sign the fact that the fund administered by the Research Committee, tho still inadequate, was considerably larger this year than last.

Following Dean Metcalf's congratulations, President Bean asked the National President to take the floor. President Richtmyer again congratulated the Chapter on its desire to organize, and on the opportunity its organization gave to help and encourage research at the University of Virginia, and to join the other Chapters in the promotion of research.

The meeting was adjourned to go to Rouss Physical Laboratory for the public lecture by Professor Richtmyer.

3. The First Public Meeting of the Virginia Chapter of the Society of Sigma Xi.

The main lecture room of the Rouss Physical Laboratory was already filled to capacity when the members of Sigma Xi arrived. President Bean of the local Chapter introduced President Richtmyer of the National Society.

The subject chosen by President Richtmyer was: "X-Rays and the Structure of the Atom." He gave a very interesting account of the discovery of X-Rays and their subsequent use in the study of crystal and atomic structure. The lecture was given in a popular style which made it interesting to everyone present, yet bringing out clearly the important steps in these momentous discoveries. It was illustrated by numerous line drawing slides and by free-hand drawings on the blackboard, the latter showing clearly that the President is perfectly at home with chalk and eraser and can use them easily in making clear methods and apparatus of the investigator.

In concluding his address the President pointed out that as regards their reaction to science the public may be divided into three classes. First, those who forgetting our debt to Faraday and other great scientists of the past think research is a waste of time, an idle occupation for dreamers. Second, those that see in it a long-time investment which in the end will more than pay for the time and cost expended. To this group Science owes most of its financial support and much of its encouragement. Third, those who love research for its own sake, who follow it for the pure joy of discovering new truths. To

this last group belongs Sigma Xi. The last two groups must show the first group the aesthetic as well as the material values resulting from Scientific Research.

FREDERICK LYONS BROWN, *Secretary*.

# THE INSTALLATION OF THE JOHNS HOPKINS CHAPTER

The installation of the Johns Hopkins Chapter of the Society of the Sigma Xi was held at the Rennert Hotel, Baltimore, Md., on Friday evening, February 29, 1924. The meeting was called to order by President Richtmyer of the national society.

Dean Ellery, national secretary, read the petition for a chapter at the Johns Hopkins University, and reported that the petition had been unanimously granted at the convention in Cincinnati. President Richtmyer spoke briefly concerning the purposes of the society and then declared the Johns Hopkins Chapter established with the following as charter members:

J. J. Abel	Walter Jones
J. S. Ames	W. B. Kouwenhoven
E. A. Andrews	P. D. Lamson
W. S. Baer	F. W. Lee
F. H. Baetjer	B. E. Livingston
E. W. Berry	W. T. Longcope
J. C. Bloodgood	Mrs. R. S. Lynch
C. G. Bull	S. O. Mast
G. H. Cartledge	E. B. Mathews
A. G. Christie	E. V. McCollum
W. W. Cort	P. D. Meader
R. P. Cowles	Adolf Meyer
T. S. Cullen	S. R. Miller
S. R. Damon	J. R. Miner
Knight Dunlap	Frank Morley
E. C. Faust	F. D. Murnaghan
W. W. Ford	W. A. Patrick
J. C. W. Frazer	Raymond Pearl
J. E. Gilpin	A. H. Pfund
J. H. Gregory	M. W. Pullen
R. W. Hegner	E. E. Reid
W. N. Hess	G. H. Robinson
W. H. Howell	C. E. Simon
L. S. Hulburt	J. T. Singewald, Jr.
R. S. Hyde	J. C. Smallwood
Miss B. J. Johnson	C. D. Snyder
D. S. Johnson	R. A. Spaeth

G. L. Streeter  
 F. H. Swett  
 W. M. Thorton, Jr.  
 H. W. Waterfall  
 L. H. Weed

W. H. Welch  
 J. B. Whitehead  
 J. W. Williams  
 G. B. Wislocki

Professor A. G. Christie accepted the charter and responded on behalf of the chapter.

The following charter members were initiated as Active Members at this time:

E. A. Andrews  
 F. H. Baetjer  
 E. W. Berry  
 Knight Dunlap  
 W. W. Ford  
 J. E. Gilpin  
 J. H. Gregory  
 L. S. Hulburt  
 Miss B. J. Johnson  
 W. B. Kouwenhoven  
 P. D. Lamson

F. W. Lee  
 Mrs. R. S. Lynch  
 S. O. Mast  
 E. B. Mathews  
 S. R. Miller  
 M. W. Pullen  
 E. E. Reid  
 H. W. Waterfall  
 L. H. Weed  
 J. B. Whitehead

With Professor Mast acting as secretary pro tem. the chapter proceeded to elect officers to serve for the remainder of the academic year. The election resulted as follows:

President: A. G. Christie

Vice-President: P. D. Meader

Secretary-Treasurer: G. H. Cartledge

President Christie took the chair. It was moved and carried that a committee be appointed to prepare a set of By-Laws. The president appointed Messrs. Dunlap, Kouwenhoven and Wislocki.

On motion the remainder of the business was postponed until after dinner. Thirty of the members were present at dinner, with the national officers and President Goodnow of the University as guests.

After dinner Dean Ellery addressed the chapter on the history and significance of the society, referring particularly to the new membership requirements, the numerical and territorial growth of the society, and the widening field of its activities. At the conclusion of the address there was an informal discussion of numerous details in connection with the conduct of the chapter.

The chair then introduced President Goodnow, who felicitated

the chapter and spoke appreciatively of the purposes of the Sigma Xi.

The principal address was made by President Richtmyer, his subject being, "Faraday and Maxwell, and Modern Physics." Using these investigators as illustrations, he spoke very entertainingly of the obligations which we owe to the pioneers in research.

By a rising vote the chapter expressed its appreciation of the presence and services of the national officers.

Adjourned.

G. H. CARTLEDGE, *Secretary*.

## REPORT OF THE TREASURER OF SIGMA XI FOR THE YEAR 1923

On January 16, 1923, in accordance with the instructions of the annual convention of Sigma Xi on December 27, 1922, the Treasurer issued a call to all the chapters for the annual dues of seventy-five cents per chapter member and \$1.00 initiation fee for each new member. The dues of all the chapters except three, the District of Columbia, Missouri and Idaho, have been paid.

### RECEIPTS

<i>1923</i>	<i>Chapter</i>	<i>Assessment</i>	<i>Amount</i>
Jan. 1	Balance.....		\$760.96
Feb. 3	Case.....	1923	18 00
Feb. 20	McGill.....	1923	59 25
Feb. 20	Brown.....	1923	30 00
Feb. 20	Pennsylvania.....	1923	110 25
Feb. 20	Rutgers.....	1923	75 25
Mar. 7	Texas.....	1923	44 00
Mar. 7	Northwestern.....	1923	49 50
Mar. 9	Kansas.....	1923	59 25
Mar. 9	Worcester.....	1923	24 75
Apr. 10	California.....	1923	45 00
Apr. 10	Indiana.....	1923	52 25
Apr. 10	Rensselaer.....	1923	30 75
Apr. 10	Colorado.....	1923	38 50
Apr. 10	Yale.....	1923	60 00
Apr. 10	Chicago.....	1923	165 00
Apr. 10	Wisconsin.....	1923	236 00
Apr. 10	Iowa State.....	1923	108 25
Apr. 14	Illinois.....	1923	110 50
May 5	California.....	1923	108 00
May 5	Kentucky.....	1923	19 75
May 9	Syracuse.....	1923	70 50
May 9	Northwestern.....	1923	29 00
May 9	Brown.....	1923	35 00
May 15	Iowa State.....	1923	16 75
May 28	Nebraska.....	1923	16 00
May 28	Columbia.....	1923	106 25
May 28	Kansas.....	1923	25 00
May 28	Wisconsin.....	1923	64 75
May 28	Worcester.....	1923	40 00

# REPORT OF THE TREASURER

19

May 28	California.....	1923	11.75
May 28	Cornell.....	1923	273.00
May 28	Rensselaer.....	1923	27.00
June 29	McGill.....	1923	59.00
June 29	North Carolina.....	1923	18.00
June 29	Washington University.....	1923	78.25
June 29	Chicago.....	1923	50.00
June 29	Kentucky.....	1923	12.00
June 29	Ohio State.....	1923	197.00
Sept. 8	Stanford.....	1923	101.50
Sept. 8	Union.....	1923	23.00
Oct. 3	Michigan.....	1923	137.25
Oct. 3	Mayo Foundation.....	1923	44.00
Nov. 5	Wisconsin.....	1923	5.00
Nov. 5	Purdue.....	1923	76.00
Dec. 10	Rensselaer.....	1923	17.00
Dec. 10	Pennsylvania.....	1923	37.00
Dec. 10	Swarthmore.....	1923	20.00
Dec. 21	North Dakota.....	1923	9.75
Dec. 21	Case.....	1923	21.00
Dec. 21	Nebraska.....	1923	74.00
Dec. 21	Oregon.....	1923	52.25
Dec. 28	Texas.....	1923	1.00
Dec. 30	Washington.....	1923	46.50
Dec. 30	Quarterly subscriptions.....		7.00

Total Receipts..... \$4,006.71

## DISBURSEMENTS

QUARTERLY—September, 1922.....	\$308.03
QUARTERLY—December, 1922.....	173.05
QUARTERLY—March, 1923.....	278.68
QUARTERLY—June, 1923.....	148.48
QUARTERLY—September, 1923.....	140.26
Secretary's Office Assistant.....	368.40
Secretary's Office, general expenses.....	165.96
Travel Expenses—Executive Committee.....	367.09
Engraving charters.....	89.10
Collection charges.....	3.58

Total Disbursements..... \$2,042.63

Cash in bank, December 31, 1923..... 1,964.08

\$4,006.71

December 31, 1923.

GEO. B. PEGRAM,  
Treasurer, Sigma Xi Society

We have audited the accounts of the treasurer of the Society of Sigma Xi for the year ending December 31, 1923, and certify that the income shown by the books of the treasurer has been duly accounted for, that payments have been properly vouched and that the balance sheet and accounts submitted contain a true statement of the financial condition of the Society.

March 30, 1924.

J. F. KEMP  
C. P. BERKEY

## FELLOWSHIP FUND

Total Receipts.....			\$3,719.09
Disbursements:			
General Expenses.....	\$ 263.42		
Payment of Fellowship stipend.....	1,101.34		
Checks returned.....	6.00		
Collection charges.....	1.05		1,371.81
Cash in bank, December 31, 1923.....			\$2,347.28

## SIGMA XI CLUBS

CHAPTER	PRESIDENT	VICE-PRESIDENT	SECRETARY	TREASURER
Oklahoma...	H. L. Dodge...	V. E. Monnett..	C. J. Bollinger...	C. J. Bollinger
Arizona.....			H. B. Leonard...	
So. California	W. L. Hardin...		P. W. Merrill...	E. E. Chandler
Duluth.....	G. E. Goldthwaite		E. W. Kelly.....	
Kansas State College....	L. E. Call.....	J. P. Calderwood	C. W. Colver....	
Carleton College....	A. T. Lincoln...	E. A. Fath.....	H. E. Stork.....	H. E. Stork
University of Denver....	T. R. Garth....	R. E. Nyswander	E. A. Engle.....	W. H. Hyslop
Oregon State College....			C. E. Thomas...	
Michigan State College	G. W. Bissell...	R. P. Hibbard..	R. M. Snyder...	R. M. Snyder



# CHAPTER OFFICERS

LIST FURNISHED BY THE CORRESPONDING SECRETARIES OF THE CHAPTERS

CHAPTER	President	Vice-President	Secretary	Treasurer
Cornell.....	R. A. Emerson.	H. Diedrichs...	H. E. Howe....	O. A. Johannsen
Rensselaer...	E. A. Fessenden	A. W. Davison..	E. M. Clark....	W. J. Williams
Union.....	J. N. Vedder...	J. H. Stoller...	M. F. Sayre....	M. F. Sayre
Kansas.....	F. B. Dains....	W. S. Hunter...	G. W. Smith....	H. E. Jordan
Yale.....	S. J. Record...	A. M. Bateman..	P. J. Laurson...	H. W. Rhinehart
Minnesota...	W. A. Riley....	J. F. McClendon	A. T. Rasmussen	E. W. Davis
Nebraska...	H. G. Deming...	W. L. DeBaufre	E. N. Andersen..	M. G. Gaba
Ohio.....	F. C. Blake....	Edward Mack...	C. A. Wright....	F. H. Eno
Pennsylvania	W. C. Farabee..	H. C. Berry....	Walter Steck- beck	H. S. Colton
Brown.....	R. F. Chambers		R. F. Borden....	H. F. Davison
Iowa.....	L. C. Raiford...	A. O. Thomas...	Perry A. Bond...	F. A. Nagler
Stanford...	E. G. Martin...	W. A. Manning..	C. N. Cross....	C. N. Cross
California...	A. S. Eakle....	W. C. Bray....	R. T. Birge....	A. C. Alvarez
Columbia...	A. W. Hixson...	C. P. Berkey....	S. L. Quimby...	S. L. Quimby
Chicago.....	H. C. Cowles...	H. H. Barrows..	E. R. Long....	E. R. Long
Michigan...	A. S. Warthin..	E. M. Bragg....	J. H. Ehlers....	W. C. Rufus
Illinois.....	A. C. Willard...	F. L. Stevens...	J. H. Reedy....	J. M. Stetson
Case.....	R. H. Danforth	J. J. Nassau....	K. W. Rausch...	T. M. Focke
Indiana.....	C. A. Malott...	O. W. Brown....	H. C. Briscoe...	Paul Harmon
Missouri...	W. J. Robbins...	A. C. Lanier....	W. A. Albrecht..	A. Gulick
Colorado...	Ivan E. Wallin..	I. C. Crawford..	C. F. Poe.....	F. S. Bauer
Northwestern	F. C. Whitmore..	S. W. Ranson...	A. H. Povah....	Margaret Fuller
Syracuse....	H. F. A. Meier	R. K. Brewer...	V. Obreshkove...	O. Gelormini
Wisconsin...	A. S. Pearse...	E. M. Terry....	E. Truog.....	R. H. Dennison
University of Washington	R. M. Winger...	H. V. Tartar...	E. J. Saunders...	E. A. Loew
Worcester...	A. J. Knight...	S. J. Plimpton..	C. D. Knight....	C. H. MacCul- lough
Purdue.....	R. A. Craig....	G. C. Branden- burg	A. P. Poorman...	C. M. Smith
Washington University	R. J. Terry....	L. McMaster...	G. W. Lamke....	C. F. Hagenow
District of Columbia...	E. E. Slosson...	M. C. Hall....	Charles Brooks..	Lorenz Whitte- more
Texas.....	F. McAllister...	E. C. H. Bantel	H. J. Muller...	P. M. Batchelder
Mayo Foun- dation....	Frank C. Mann	J. H. Stokes....	T. B. Magath...	T. B. Magath
N. Carolina...	W. B. MacNider	J. W. Lasley...	T. Saville.....	T. Saville
N. Dakota...	K. H. Fussler...		L. P. Dove.....	L. P. Dove
Ames.....	L. H. Pammel..	O. R. Sweeney...	P. E. Brown....	J. A. Wilkinson
Rutgers.....	George Win- chester	A. W. Blair....	P. A. van der Meulen.....	T. J. Murray
McGill.....	W. W. Chipman	R. F. Ruttan...	R. DeL. French..	R. DeL. French
Kentucky...	W. D. Funk- houser	Marietta Eich- elberger	H. H. Downing..	P. E. Karraker
Idaho.....	M. F. Angell...	F. G. Miller....	Eugene Taylor..	C. E. Behre
Swarthmore	J. A. Miller....	Spencer Trotter	W. R. Wright...	E. W. Doeblor
Oregon.....	A. E. Caswell...	G. E. Burget...	H. B. Yocom....	H. R. Crosland
Virginia...	R. B. Bean....	S. A. Mitchell..	F. L. Brown....	F. L. Brown
Johns Hopkins...	A. G. Christie..	P. D. Meader...	G. H. Cartledge.	G. H. Cartledge

## OFFICIAL ANNOUNCEMENTS

Associate membership emblems can be secured only by order from the chapter secretary to the national secretary. All orders must be prepaid. Special order blanks sent on request.

QUARTER CENTURY RECORD AND HISTORY bound in elect. blue cloth. 1886-1911. 7500 names. 550 pp. \$2.50.

## SIGMA XI PUBLICATIONS

QUARTERLY, Volumes 1-7, 1913-19, four numbers each, unbound, 50 cents per each volume. Forwarded prepaid on receipt of draft or money order in payment of the amount indicated.

Title Page and Table of Contents of any volume on request.

Those ordering a complete set of the QUARTERLY and HISTORY will receive in addition until the supply is exhausted without extra cost a copy of each of the Proceedings of the early Conventions as follows:

Seventh (Philadelphia) Convention. 1904. Pamphlet. 15 pp.

Eighth (New York) Convention. 1906. Pamphlet. 7 pp.

Ninth (Chicago) Convention. 1908. Pamphlet. 14 pp.

Tenth (Baltimore) Convention. 1909. Pamphlet. 6 pp.

Eleventh (Boston) Convention. 1909. Pamphlet. 16 pp.

Twelfth (Minneapolis) Convention. 1910. Pamphlet. 27 pp.

Thirteenth (Washington) Convention. 1911. Pamphlet. 27 pp.

Later conventions are reported in the QUARTERLY.

## PRINTED BLANKS

The General Convention has instructed the Secretary to forward to chapters under the following stipulations:

Membership Certificates, stamped with the great seal of the Society. In packages of fifty prepaid, on advance payment of \$2.50 for each package. Please specify carefully whether for members or associates.

Index Cards, provided a duplicate set be sent for the general index of the Society maintained in the secretary's office. Gratis.

## MAILING LISTS FOR THE QUARTERLY

Chapter secretaries are requested to furnish a correct list of mailing addresses of active members for the printer. Blank forms, gratis on demand.

The mailing list should be sent early in September and be valid for the academic year. All changes of address and all other correspondence should be addressed to the Secretary of Sigma Xi, Edward Ellery, Union College, Schenectady, N. Y.